

# GILA RIVER BASIN

## 09510000 VERDE RIVER BELOW BARTLETT DAM, AZ

**LOCATION.**--Lat 33° 48'30", long 111° 39'46", in NW1/4 sec. 5, T.5 N., R.7 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 2.1 mi downstream from Bartlett Dam, 4.0 mi upstream from Camp Creek, and 16 mi east of town of Cave Creek.

**DRAINAGE AREA.**--6,161 mi<sup>2</sup>, of which 365 mi<sup>2</sup> is noncontributing, including 357 mi<sup>2</sup> in Aubrey Valley Playa, a closed basin.

**PERIOD OF RECORD.**--Aug. 1888 to current year. (Monthly discharge only Aug. 1888 to Dec. 1903, and Jan. 1910 to Sept. 1913. For some periods prior to Dec. 1903 gage heights, discharge measurements, and daily discharge hydrographs are published in reports of the Geological Survey.) Prior to Oct. 1941, published under different names as follows: "near Fort McDowell," "at mouth," "above Salt River," "at McDowell," "at McDowell near Lehi," "near McDowell," and "above Camp Creek, near McDowell."

**REVISED RECORDS.**--WSP 1049: 1893, 1913--14, 1917--18, 1926--27, 1929. WSP 1213: 1915--16. WDR AZ--89--1: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,570.34 ft above sea level. Gage at present site and datum 2.00 ft higher Jan. 1, 1942, to Sept. 30, 1961, Dec. 30, 1965, to Mar. 10, 1971, and Oct. 1, 1978, to Jan. 4, 1993; Mar. 2 to Sept. 30, 1978, used as supplementary gage, and Feb. 18, 1975, to Feb. 28, 1978, supplementary water-stage recorder at site 30 ft upstream at same datum. Oct. 1, 1961, to Dec. 29, 1965, and Mar. 11, 1971, to Sept. 30, 1973, water-stage recorder at site 1.9 mi upstream at datum 1,600 ft, from topographic map; at same site at datum 4.00 ft higher, Oct. 1, 1973, to Mar. 3, 1975, and 5.00 ft higher, Oct. 1, 1961, to Dec. 29, 1965, and Mar. 11, 1971, to Sept. 30, 1973. Feb. 17, 1925, to Dec. 31, 1941, water-stage recorder at two sites within 0.5 mi upstream from Camp Creek, at various datums. Prior to Feb. 17, 1925, nonrecording gages at several sites about 20 mi downstream from present location at various datums.

**REMARKS.**--Records good, except those for estimated daily discharge, which are poor. About 12,500 acres above station are irrigated by surface water and ground water. Flow completely regulated by Bartlett Reservoir since Feb. 5, 1939, and Horseshoe Reservoir since Nov. 15, 1945, except during periods of spill. Water diverted downstream for municipal supply for the city of Phoenix, and for irrigation in Fort McDowell Indian Reservation. Remainder (except during infrequent periods of extreme flooding) is diverted at Granite Reef Dam on Salt River 27 mi downstream for irrigation in Salt River Valley, and for municipal use by the city of Phoenix.

**AVERAGE DISCHARGE** (adjusted for storage in Bartlett and Horseshoe Reservoirs).--114 years, 663 ft<sup>3</sup>/s, 480,300 acre-ft/yr; median of yearly mean discharge, 530 ft<sup>3</sup>/s, 384,000 acre-ft/yr.

**EXTREMES FOR PERIOD OF RECORD.**--1888--1939: Maximum discharge not determined, probably over 150,000 ft<sup>3</sup>/s Feb. 24, 1891; minimum daily, 29 ft<sup>3</sup>/s July 11 and 13, 1901. Floods of Nov. 27, 1905 and Mar. 4, 1938, reached maximum discharges of 96,000 ft<sup>3</sup>/s and 95,000 ft<sup>3</sup>/s, respectively.

1939--2000: Maximum discharge, 110,000 ft<sup>3</sup>/s Jan. 8, 1993; no flow at Bartlett Dam at times when gates in dam were closed.

**EXTREMES FOR CURRENT YEAR.**--Maximum daily discharge, 1,530 ft<sup>3</sup>/s Nov. 2. Minimum daily discharge, 85 ft<sup>3</sup>/s Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	1420	866	106	88	99	101	114	104	114	107	91
2	114	1530	823	103	88	100	111	119	91	120	96	97
3	115	1430	838	101	88	102	102	112	97	118	94	117
4	118	1330	768	102	88	101	107	112	98	116	118	118
5	119	1390	636	103	88	101	93	e95	99	118	121	97
6	118	1410	681	104	88	102	94	e99	109	116	120	93
7	120	1360	691	105	102	102	94	e99	114	95	102	94
8	121	1320	640	106	100	102	95	e99	114	113	106	92
9	122	1300	654	107	89	102	96	98	114	117	115	104
10	128	1300	651	131	90	101	95	107	114	100	109	108
11	128	1260	583	131	91	101	95	98	114	124	104	92
12	164	1140	619	132	91	101	95	99	113	108	109	96
13	376	1100	672	130	91	101	95	113	113	107	106	99
14	722	1110	667	106	91	100	93	102	110	115	99	99
15	950	1210	628	91	91	102	111	107	91	124	107	103
16	1050	1140	617	92	91	102	110	108	92	113	95	103
17	1090	1060	645	92	91	102	109	97	100	99	94	109
18	1150	1060	659	92	125	101	119	96	289	98	94	115
19	1250	1350	723	91	131	114	121	95	650	96	119	101
20	1320	1430	713	92	130	119	113	98	660	92	116	98
21	1320	1340	709	92	129	119	97	103	657	91	92	98
22	1480	1130	707	93	128	112	97	96	655	92	101	97
23	1490	1040	705	92	111	107	113	101	654	93	108	95
24	1460	982	754	92	98	103	98	102	373	101	101	95
25	1440	854	766	91	98	104	98	134	118	100	95	101
26	1420	865	1030	101	98	109	98	144	124	98	108	101
27	1300	913	1190	86	98	120	108	127	123	100	115	99
28	1220	953	824	87	99	120	122	115	123	102	107	91
29	1480	942	489	87	---	119	122	115	114	108	94	85
30	1380	918	320	87	---	104	115	115	103	112	93	102
31	1320	---	156	88	---	104	---	118	---	123	91	---
TOTAL	24700	35587	21424	3113	2791	3276	3117	3337	6430	3323	3236	2990
MEAN	796.8	1186	691.1	100.4	99.68	105.7	103.9	107.6	214.3	107.2	104.4	99.67
MAX	1490	1530	1190	132	131	120	122	144	660	124	121	118
MIN	114	854	156	86	88	99	93	95	91	91	91	85
AC-FT	48990	70590	42490	6170	5540	6500	6180	6620	12750	6590	6420	5930

CAL YR 2001 TOTAL 149068 MEAN 408.4 MAX 1530 MIN 94 AC-FT 295700  
WTR YR 2002 TOTAL 113324 MEAN 310.5 MAX 1530 MIN 85 AC-FT 224800

e Estimated

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## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Dec. 1950 to Aug. 1992, June 1999 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Oct. 1964 to Dec. 1981, Mar. 1982 to Sept. 1982, Apr. 1983 to Sept. 1990.

WATER TEMPERATURES: Dec. 1950 to Dec. 1981, Mar. 1982 to Sept. 1982, Apr. 1983 to Sept. 1990.

REMARKS.--Unpublished daily specific conductance measurements for period Dec. 1950 to Sept. 1964 available from district office in Tucson, AZ.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET SECOND (00061)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT 02...	1140	114	2.6	718	9.4	102	8.2	448	27.0	16.2	0	180	37.0
MAR 15...	1200	103	5.2	717	11.1	107	8.4	591	17.5	10.6	4	230	43.0
APR 23...	1205	123	10	719	11.6	115	8.4	602	31.0	12.4	1	230	43.0
JUL 10...	1135	92	6.1	718	--e	--	8.3	634	33.0	15.2	11	250	46.0
Date	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM AD- SORP- TION RATIO (00931)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
OCT 02...	38.0	21.0	22.0	2.20	.7	23.0	178	217	<1	14.0	.3	32.0	4
MAR 15...	44.0	30.0	33.0	2.70	1	35.0	228	267	5	23.0	.3	60.0	8
APR 23...	45.0	30.0	32.0	2.80	1	37.0	230	268	6	24.0	.4	60.0	10
JUL 10...	46.0	33.0	33.0	2.80	1	38.0	239	282	5	25.0	.3	60.0	5
Date	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)
OCT 02...	.36	263	236	.50	.07	.09	.030	.43	.53	2.3	.03	12	<1
MAR 15...	.49	359	331	<.20	<.01	--	.050	--	--	.02	<5	<1	
APR 23...	.49	360	335	<.20	<.01	--	.060	--	--	<.02	<5	E20k	
JUL 10...	.50	367	349	<.20	<.01	--	<.020	--	--	.04	<5	E12k	
Date	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ANTI- MONY, TOTAL (UG/L AS SB) (01097)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BORON, DIS- SOLVED (UG/L AS B) (01020)	BORON, RECOV- ERABLE (UG/L AS B) (01022)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)
OCT 02...	E7k	<1	<1	11	14	50.0	50.0	<1	<1	103	103	<.5	<.5
MAR 15...	E1k	<1	<1	13	19	53.0	58.0	<1	<1	165	172	<.5	<.5
APR 23...	E5k	<1	<1	13	13	54.0	61.0	<1	<1	160	167	<.5	<.5
JUL 10...	E6k	<1	<1	16	26	60.0	61.0	<1	<1	171	169	<.5	<.5

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**09510000 VERDE RIVER BELOW BARTLETT DAM, AZ—CONTINUED**

**WATER-QUALITY RECORDS**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)
OCT 02...	<1	<1	<2	<2	14	104	<2	<2	25	57	<.10	<.1	<1
MAR 15...	<1	<1	<2	<2	<2	301	<2	<2	5	25	<.10	<.1	1
APR 23...	<1	<1	<2	<2	<2	358	<2	<2	14	46	<.10	<.1	<1
JUL 10...	<1	<1	<2	<2	<2	221	<2	<2	36	66	<.10	<.1	<1

  

Date	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE) (01147)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR) (01082)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	THAL- LIUM, TOTAL RECOV- ERABLE (UG/L AS TL) (01059)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	SEDI- MENT, DIS- SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- SUS- PENDED (T/DAY) (80155)
OCT 02...	1	<1	<1	<1	<1	520	<2	<2	11	6	5.0	1.5
MAR 15...	1	1	<1	<1	<1	720	<2	<2	8	<2	5.0	1.4
APR 23...	1	<1	<1	<1	<1	720	<2	<2	5	2	13	4.3
JUL 10...	2	<1	<1	<1	<1	760	<2	<2	9	<2	8.0	.02

Remark codes used in this report:  
 < -- Less than  
 E -- Estimated value  
 Value qualifier codes used in this report:  
 k -- Counts outside acceptable range  
 Null value qualifier codes used in this report:  
 e -- Required equipment not functional/avail

